component $2\omega v \sin \varphi$, where φ is defined astronomically. The component is toward the north or south according as v is positive or negative, that is as v is in the same direction as ω or not.

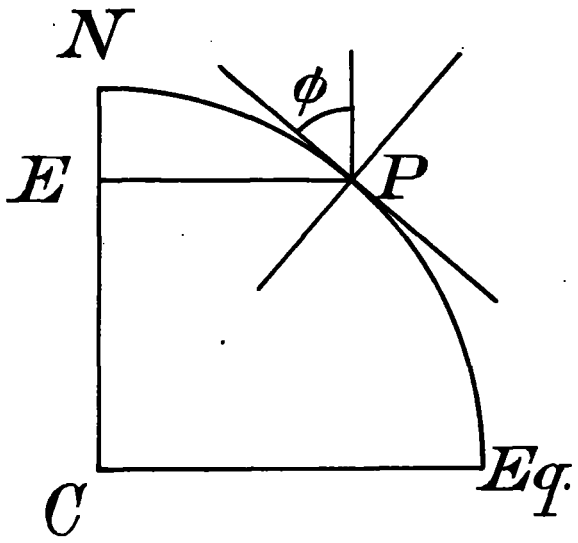

FIG. 1.

Finally, if *no force* acts, the air moves *relatively to the circles of latitude* with acceleration $2\omega v \sin \varphi$ to the *south* or the *north* according as v is from west to east or from east to west. The deflection is always to the right in the Northern Hemisphere where φ is positive.

TITLES OF PAPERS READ BEFORE THE GERMAN METEOROLOGICAL ASSOCIATION.

The Meteorological Association held its eleventh general meeting, celebrating twenty-five years of its existence, at Hamburg September 28–30, 1908. In addition to the business and social features and the visits made on the 1st of October, after the close of the session, to neighboring meteorological stations, including the kite station at Grossborstel, the readers of the MONTHLY WEATHER REVIEW will be specially interested in the scientific addresses and papers. Following is a translation of the titles.

Monday, September 28.

Doctor Hellmann, of Berlin: On the beginnings of meteorology.
Professor Doctor Köppen, of Hamburg; The interaction of maritime and land meteorology in their historical development.
Vice-Director A. Steen, of Christiania: Cloudiness and daylight.
Director Jensen, of Hamburg: The problems at present associated with the study of atmospheric polarization.
Professor Doctor Schubert, of Eberswald: The precipitation on the Annaburger Heath.

Tuesday, September 29.

Director Teisserenc de Bort, of Paris: The division of the atmosphere into troposphere and stratosphere, as based on the results of the exploration of the upper air.
Director Teisserenc de Bort, of Paris, and Prof. A. L. Rotch, of Boston: On the atmospheric circulations in the intertropical and subtropical zones, from the results of three campaigns on the *Otaria*.
Professor Doctor Hergesell, of Strassburg in Alsace: The warm high layer in the atmosphere.
Prof. A. L. Rotch, of Boston: The warm layer of the atmosphere above 12 kilometers, in America.
Dr. Alfred Wegener, of Berlin: Preliminary report on the kite and captive balloon ascensions of the Danish expedition to Greenland.
Professor Doctor Erk, of Munich: Technical experiences and scientific results from the mountain station on the Zugspitze.
Doctor Schmauss, of Munich: Simultaneous temperatures on the Zugspitze and at the same altitude in the free air.
Doctor Coym, of Lindenberg: On absolute measurements of radiation in the free balloon.
Professor Doctor Schreiber, of Dresden: Application of thermodynamics to the discussion of balloon observations.
Professor Doctor Möller, of Brunswick: The air waves in the higher strata of the atmosphere depending on the diurnal heating of the whole mass of air lying below them.
Professor Doctor Börnstein, of Berlin: Report on the German Public Weather Service.
Professor Doctor Grossmann, of Hamburg: The addition of the change of atmospheric pressure or the barometric tendency to the current weather telegrams.
Doctor Polis, of Aix-la-Chappelle: The applicability of wireless telegraphy to the dissemination of weather reports.
Professor Doctor Köppen, of Hamburg: On Guilbert's rules for weather forecasting.

Wednesday, September 30.

Professor Doctor Assmann, of Lindenberg: Twenty years of work with the aspiration-psychrometer.
Professor Doctor Kassner: Exhibition of his improved Jacob's-staff, and his improved evaporometer.
Doctor Stefan, of Hamburg: Exhibition of new meteorological apparatus and installations.
Professor Doctor Erk, of Munich: On methods of instruction in meteorology.
Professor Doctor Köppen, of Hamburg: New graphic psychrometric tables.
Doctor Less, of Berlin: Exhibition of a new daybook or journal for recording regular and also occasional weather observations.
Professor Doctor Lüdeling, of Berlin: On the measurements of atmospheric electricity on the Kara Sea by the lieutenants of the Norwegian vessel *Rachlef*.

RELATION BETWEEN THE RANGE OF AIR TEMPERATURE AND THE DISTRIBUTION OF LAND AND WATER.

By M. TSUTSUI.[1]

In order to find the existence of definite relations, if any, between the range of air temperature and the distribution of land and water, we have examined the temperature observations of fourteen meteorological stations situated along the coast of the Central Honshu. At first we compared the ranges of temperature within the circles drawn with the stations as their centers and with the radius of 5 *ri* (20 km.), but we failed to find any relations. Next we examined the land areas within the 2-*ri* (8 km.) circle and the ranges of air temperatures observed at the centers of the circles, viz, at the meteorological stations, and found that the ranges of air temperatures are related to the amounts of land areas distributed within the circles by the following formula:

$$y=a+bx,$$

where y represents temperature range and x the area of the land distributed in the circle (the area of the circle being taken as 10), a and b are constant.

In the case in which the radius of the circle is 2 *ri*,

$$a=4.6,\ b=0.48.$$

In the case

$$x=\frac{2A+B}{3},$$

(where A=area of 2-*ri* circle and B=area of 2—5-*ri* circle,)

$$a=4.55,\ b=0.52.$$

For $a=4.60$ and $b=0.48$, the values of y differ from the observed values to the amount of ± 0.30, the maximum difference being 0.8; and for $a=4.55$ and $b=0.52$, the differences of the values of y from the observed values amount to ± 0.24, the maximum difference being 0.65.

Hence we come to the conclusion that the distribution of land and water controls the range of temperature in the area of a circle with a radius of 2 *ri*, the error being less than 1° in temperature.

M. ISHIDA'S REMARKS ON M. TSUTSUI'S PAPER.

Mr. Tsutsui has shown the relation between the distribution of land and water by the linear equation

$$y=a+bx;$$

but it seems more appropriate to consider the range of temperature as a function of latitude as well as a function of the distribution of land area; hence

$$R=a+bn\cos\varphi,$$

[1] Reprinted from the English abstracts in Jour. Met'l. Soc., Japan, October, 1908, 27th year, No. 10, p. 27–8.